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LIGHTING LOUVER

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FIG. 1

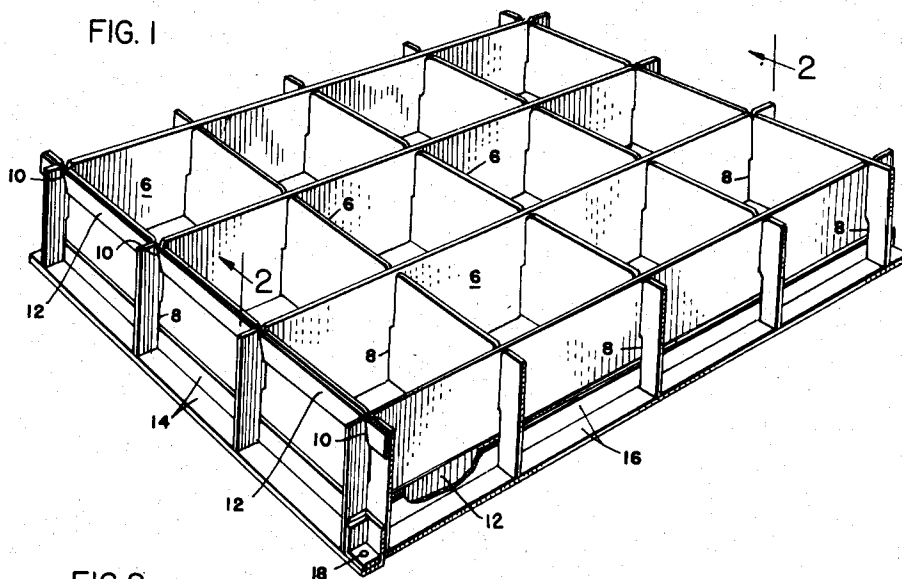


FIG. 2

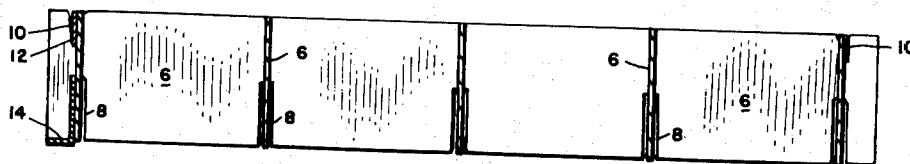
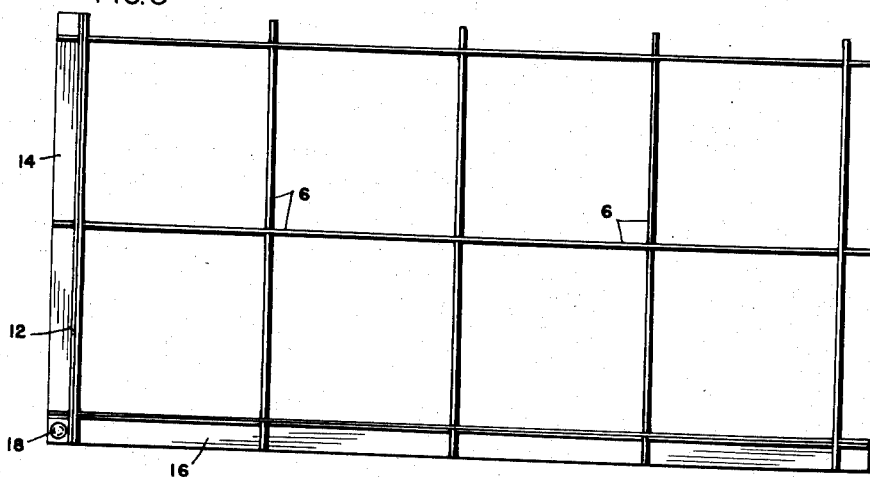


FIG. 3



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LIGHTING LOUVER

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5 Claims. (Cl. 189—82)

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This invention relates in general to a cellular louver for electric lighting fixtures, particularly of the fluorescent tube type and is more particularly described as a flexible fibrous louver of fire resisting material such as paper or cardboard which either may or may not be coated or otherwise treated with fire or flame resistant material. In making a louver of this kind out of flexible material such as cardboard, it is difficult to keep the strips of the louver together in inner engaged position without some additional holding means, and even when the louver strips are properly connected, the flexible and collapsible nature of the unit makes it desirable to utilize a stiffening and holding structure for keeping it in an extended rectangular position.

One of the objects of the invention is to provide a stiff support for maintaining a flexible louver unit in extended substantially rectangular position.

A further object of the invention is to provide means for locking the louver strips against disengagement from each other.

A further object of the invention is to provide a stiffening structure for a flexible lighting louver unit in which a web portion of the stiffening unit is inserted in the slot of the louver strips which is tightly held there by friction, to prevent the louver unit from weaving and keeping it in alignment.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which,

Fig. 1 is a perspective view of one corner of a louver unit in accordance with this invention;

Fig. 2 is a sectional view of the structure shown in Fig. 1; and

Fig. 3 is a top plan view showing more particularly the louver stiffening feature for a lighting unit.

In making cellular louvers for lighting fixtures of flexible material such as paper or fiber, it is found that the louver strips increase and decrease in size depending upon the moisture content so that even though the strips are tightly interengaged when originally installed, they become loose when thoroughly dry, tending to slip apart easily when being transferred, handled or applied. Furthermore, the slots are not intended to engage too tightly as that prevents the rapid inter-engagement of the strips and would prevent them from folding flatly together if they are collapsed for shipment or storage.

The present invention provides a tape which is inserted in special end slots opposite the regular

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interengaging slots at at least two outer sides of the louver unit, and a thin metal angle is also inserted in at least two outer slots at right angles to each other for holding the strips of the louver in predetermined angular position, usually at right angles to each other.

Referring now more particularly to the drawings, a louver unit for lighting or other similar purposes is composed of similar strips 6 of flexible material such as fiber, reinforced paper or cardboard, and the outer sides of this may be made flameproof or fire resistant by covering it with thin metal foil or treating or impregnating the material with a fire resistant material. Each strip 6 has slots 8 extending from one side edge thereof and at spaced distances apart so that when a number of the strips are reversed and interengaged in the slots of the opposite strips, an angular and cellular structure is formed which may be collapsed flatly or extended into rectangular and cellular position in a well known manner. At the ends of each strip and opposite the ordinary slot 8 thereof is a locking slot 10 extending from the opposite edge of the strip so that a locking tape 12 may be inserted therein along the edge of the end strip and if this tape is preferably adhesive and attached to the adjacent edge of the strip seated in the locking slots 10 of the ends of the strips. A locking tape 12 is thus applied to the opposite edges of the outermost strips at two adjacent sides and preferably, in this manner, to all four of the sides to complete the locking arrangement.

After a unit of strips of the desired shape and size has been assembled, the locking tapes 12 are simply inserted in the locking slots 10 at the ends and in the ordinary slots 8 in the opposite edges of adjacent strips thereby firmly holding and locking all of the strips in place so that the unit may be freely handled and transported without danger of the strips becoming disengaged therefrom. The locking engagement is used on all four sides, and for very long louvers, it may also be advantageous to run it transversely across the center to support the long strips which may have a tendency to separate or disengage over too long a space.

To additionally support and maintain an assembled unit in rectangular form, a light metal construction consisting of angle bars 14 and 16 are inserted in the slots 8 and 10 of the intersecting strips along one outer side of the assembled unit and at right angles thereto along the other adjacent side, the angle bars crossing at their adjacent corner and may have a fasten-

ing device 18 such as a rivet extending there-through for positively holding them at right angles with respect to each other. When the louver unit is assembled and extended to right angled or normal cellular position, the strips fit more freely in the slots 8 so that the angle bars 14 and 16 which are preferably formed of thin metal may be inserted in the slots 8 and 10 thereby holding the unit tightly in place, preventing it from movement, disengagement and consequent wearing of the strips. To disengage the cellular unit from the angle bars, it is necessary only to lift them out of engagement of the vertical web of the bars freeing the bars from the slots 8 and 10.

With this construction, these flexible cellular units when once assembled are tightly held in place by the locking tapes 12 so that the strips do not become disengaged from each other even though the unit is collapsed and extended and is freely handled for application and removal. When the assembled unit of louver strips is extended and placed in engagement with the angle bars, the unit is held in rectangular arrangement so that the unit can be accurately applied to and received in a lighting fixture frame. The louver unit floats upon the distending angle bars and is not positively fastened thereto except by the friction of the slots.

While I have described a preferred construction and arrangement in some detail, it should be regarded as an illustration or example and not as a limitation or restriction of the invention as various changes may be made in the construction, combination and arrangement of the parts without departing from the spirit and scope of the invention.

I claim:

1. A lighting fixture louver, comprising a plurality of flexible flat strips each having spaced slots cut from one edge thereof and the strips reversely assembled in two series with the strips of one series being angularly disposed with respect to those of the other and with body portions of strips of each series fitting in the slots of the strips of the other series and forming a rectangular cellular structure having intersecting side edges, locking means engaging the sides of the outermost strips and interlocked with the ends of all strips and holding all strips against disengagement, and angular supporting means engaged in the outer slots of the strips in two adjacent edges of the structure holding the strips in rectangular assembled position.

2. In a lighting fixture louver, a plurality of strips having spaced slots extending substantially half-way through each strip from one edge thereof, the strips placed oppositely and in two series with the strips of one series being angularly disposed with respect to those of the other and with body portions of strips of each series fitting in the slots of the strips of the other series and forming a rectangular cellular unit, locking slots at the ends of the strips extending reversely to the interengaging slots, locking means engaging the sides of the outermost strips and interlocked with the ends of all strips and holding all strips against disengagement, and means for holding

the assembled cellular unit in distended position comprising angle bars inserted in the outer interengaging slots in two adjacent edges of the unit and the angle bars overlapping and secured together at the corner.

3. In a cellular unit for lighting fixtures, a plurality of flexible fibrous strips each having spaced slots extending from one edge thereof, the strips disposed reversely and the respective strips in two series with the strips of one series being angularly disposed with respect to those of the other and with body portions of strips of each series fitting in the slots of the strips of the other series and forming a rectangular cellular unit, means at the ends of the strips locking them into engagement with the adjacent cross strip, and means comprising stiff angle bars inserted in the interengaging slots in two adjacent edges at the sides of the assembled unit connected and intersecting at a corner and holding the unit in distended cellular position.

4. A cellular louver unit composed of flexible fibrous strips, each having spaced slots extending from one side thereof approximately half-way through the strip and the strips disposed reversely in two series with the strips of one series being angularly disposed with respect to those of the other and with body portions of strips of each series fitting in the slots of the strips of the other series and forming a rectangular collapsible unit, locking means engaging the sides of the outermost strips and interlocked with the ends of all strips and holding all strips against disengagement, and means frictionally engaged with the outer interengaging slots at two adjacent edges of the unit holding the unit in relatively distended cellular position.

5. In a cellular unit, comprising a plurality of strips of flexible sheet material, each strip having spaced slots extending from one edge thereof substantially half-way through the strip and the strips being disposed reversely in two series with the strips of one series being angularly disposed with respect to those of the other and with body portions of strips of each series fitting in the slots of the strips of the other series and forming a rectangular cellular unit, locking means engaging the sides of the outermost strips and interlocked with the ends of all strips and holding all strips against disengagement in assembled position, and a pair of stiff angle bars secured together at right angles to each other, one web of each angle bar extending into the outer slots and interlocked with the transverse strips for holding the unit in distended position.

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